THE PLOUGH BOY.

AND JOURNAL OF THE BOARD OF AGRICULTURE.

BY SOLOMON SOUTHWICK.

"He that observeth the wind shall not sow; and he that regardeth the clouds shall not reap."—BUT—"He that tilleth his land shall have plenty of bread."—*Ecclesiastes*

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Cheshire Cheese Making.

[CONCLUDED.]

[Selected for the PLOUGH BOY, from Holland's General View of the Agriculture of Cheshire.]

"*Breaking down the Curd and gathering, &c.* If the milk has been set together very warm, the curd (as before observed) will be firm; in this case, the usual practice is to take a common case knife, and make incisions across it to the full depth of the knife blade, at the distance of about one inch, and again crosswise in the same manner; the incisions intersecting each other at right angles. The whey rising through these incisions is of a fine pale green colour. The cheese-maker and two assistants then proceed to break the curd: this is performed by repeatedly putting their hands down into the tub (the cheese maker with the skimming dish in one hand,) and breaking every part thereof as they catch it; raising the curd from the bottom, and still breaking it. This part of the business is continued till the whole is broken uniformly small: it generally takes up about forty minutes, and the curd is then left covered over with a cloth for about half an hour, to subside.

"If the milk has been set cool together, the curd will (as mentioned before) be much more tender; the whey will not be so green, but rather of a milky appearance. The cheese-maker, in this case, instead of the knife, has recourse to the skimming dish, the edge of which she holds perpendicular to the surface of the whey in the tub, and dips it gently an inch or two into the curd, and turns it over, until the whole surface is turned. The breaking then proceeds as before, but a cautious and gentle mode of doing it is more necessary than in the former case. Rather more time, of course, is requisite for breaking down a cold, than a hot cheese; but when sufficiently broken, it is covered over, and left to subside as before. After standing about half an hour, as much whey is taken out of the tub into the brass pans, as conveniently may be, without taking any of the curd with it. In some dairies this whey is occasionally heated, in others cooled (or at least a part of it) and returned again into the cheese-tub, as the weather or other circumstances may require. In general, however, it is not returned to the curd, but the whey being laded out of the tub, the breaking recommences as before for about a quarter of an hour; it is then left to settle for a few minutes, when the whey is again laded, but with former precaution.

"The bottom of the tub is now set rather atilt, the curd is collected to the upper side of it, and a board is introduced, of a semicircular form, to fit loosely one half of the tub's bottom. This board is placed on the curd, and a sixty pound weight upon it, to press out the whey, which, draining to the lower side of the tilted tub, is laded out into brass pans. Such parts of the curd as are pressed from under the board, are cut off with a knife, placed under the weighted board, and again pressed. This is repeated again and again, the whey being constantly laded out as it drains from the curd. The whole mass of curd is then turned upside down, put on the other side of the tub, again pressed, pared, and pressed as before. The board and weight being removed, the curd is cut into several pieces of about eight or nine inches square, piled upon each other, and pressed with the board and weight; repeating the cutting and piling, as long as any whey drains from it. A stranger to the business would conclude that much stress was laid upon breaking the curd, just on the surface of the whey; for he observes that the whole of the curd is broken there, and the palms of the women's hands, being turned upwards, keep continually raising, and buoying up a portion of the curd to the surface, with a seeming intention to delay the crushing of it, until it floats upon the top; but this circumstance is owing to the lightness of the curd in that state, which on this account escapes the grasp, until it comes in contact with a lighter medium, the air. It scarcely need be added, that the more gently the whole of the business in the tub is performed, the more perfect will be the separation of curd and whey. The next thing is to break the curd in a brass pan. After being pressed in the tub as long as any considerable quantity of whey drains from it, the curd is cut into three nearly equal portions, one of which is taken into a brass pan, and is there by two women broken exceedingly fine. As soon as it is coarsely broken, a large handful of salt is added, which in the subsequent breaking is well mixed with the curd; that portion of curd being sufficiently broken, is put into a cheese vat which is placed to receive it, on a cheese ladder over the cheese tub. The vat is furnished generally with a coarse cheese-cloth. The second and third portions of the curd are treated in the same manner, and emptied into the vat; except, that into the middle portion, eight, nine, or ten times the usual quantity of salt is generally put. By some dairy-women, however, each portion is salted alike, and with no more than three large handfuls to each. The breaking takes up more or less time, as the cheese was set together hotter or colder; half an hour is, perhaps the longest time.

"*Thrusting, or hand-pressing the Cheese in a vat.*—The curd, when put into the cheese-vat in its broken state, is heaped above the vat in a conical form; to prevent it from crumbling down, the four corners of the cheese-cloth are turned up over it, and three women placing their hands against the conical part, gently, but forcibly, press it in near a horizontal direction, constantly shifting their hands when any portion of the curd is starting from the mass, and turning down and folding up the cloth as occasion requires. As soon as the curd adheres together so as to admit it, a small square board, with a corner of the cloth under it, is put on the top of the conical part of the curd, with a sixty pound weight upon the board. Several iron skewers are, at this time, stuck in the cone, and also through holes in the side of the vat. In many dairies, a lever is used to thrust or press the cheese; this is a long substantial pole, one end of which is fastened in the wall, in a direction nearly parallel to the top of the cheese, on which (the cheese) a small board is placed to receive the lever. The power gained by it is used at discretion. In other dairies, they use thrusting screws, which are fixed to the floor above, the power whereof may be regulated at pleasure. The employment of the women is now that of drawing out and putting in the skewers, thrusting and keeping together the portions of curd that the power of the weight or lever, &c displaces. This operation is continued till the whey, which at first ran from it freely, begins to be discharged by drops; the weight,

&c. and skewers are then removed, and one woman takes up the corners of the cloth, while the others break the curd, half way to the bottom of the vat, as small as they can. Some people use a wooden or tin hoop, about nine inches broad, instead of holding up the corners of the cloth, during this breaking. After the upper half of the cheese is thus broken, it has again a weight, or other power, applied to it, and is skewered and thrusted as before; at first the whey again runs freely, and the operation is continued as long as those means will press out a drop of whey. Two women then take the four corners of the cloth, (the skewers, &c. being removed) and the other women lay hold of the vat, which is drawn from the cheese, and after rinsing it in warm whey, and putting another clean cloth over the upper part of the cheese, it is returned inverted into the vat again; and being placed on the ladder over the tub, is broken half way through as before: the thrusting, weighting, and skewering, &c. is repeated, and continued, from two to four hours, or as long as a drop of whey can be extracted from the cheese. In the practice of some dairy-women, some spare curd is kept to mix with the following day's cheese, from an opinion that it will prevent the cheese swelling under the press, &c But, on the whole, this method is seldom practised.

"*Putting the Cheese into the Press, &c.*—When no more whey can be extracted by the use of these means, the cheese is again turned in the vat, and rinsed as before in warm whey. The cloth, now made use of, is finer and larger than the former, and is so laid, that on one side it shall be level with the edges put within the vat; thus perfectly inclosing the whole cheese in the cloth. In this stage of the business the cheese is still higher than the edge of the vat; and to preserve it in due form, recourse is had to a tin binder or hoop, about three inches broad, which is put round the cheese, on the outside of the cloth, and the lower edge of the binder pressed down within the vat, so low as that the upper edge of it may be level with the surface of the cheese.—The cheese is then carried to the press, and a smooth strong board being placed over it, the press is gently let down it; the usual power of which press is about fourteen or fifteen hundred weight. In most dairies there are two presses, and in many three or four, of different weights. The cheese is, by some, put under the heaviest press first, and by others under the lightest.—Some dairy-women, instead of the tin binders, use cheese fillets, which are a strong, broad, coarse sort of tape; one end of which they thrust down with a thin wooden knife between the cheese-cloth and vat, and then draw it tightly several times round the cheese, and fasten it with strong pins. As soon as the cheese is put into the press it is immediately well skewered. The skewers are of strong iron wire, eighteen or twenty inches long, sharp at the points, and turned with a bow at the other end. The vat and tin binder have holes to receive these skewers, especially the binder, which holes are seldom more than an inch from each other. As the presses always stand close to a wall, only one side of the cheese can be skewered at a time on that side; therefore, as many skewers are stuck in different directions, as conveniently may, leaving as many holes unskewered as are skewered, to give an opportunity of changing the holes. The business of skewering continues till the next morning, at six o'clock, and in that time the oftener they are shifted, the better: every second time of shifting them, the cheese is turned half way round in the press, to come at the other side of it. In half an hour from the time the cheese is first put in the press, it is taken out again, and turned in the vat, into another clean cloth. At this time the edges of the cheese are pared off, if they have become sharp under the press (but as the vats are now usually made with the angles rounded, the paring is rendered unnecessary), the vat being wiped dry before the cheese is returned to it. When the cheese is thus a first time taken out of the press, it is the custom in some places to put it naked into warm, and, in other places, into hot whey, where it stands an hour or more; it is then taken out, wiped dry, and after it has stood till cool, is returned to the press. This is done with a view of hardening its coat, that it may stand the better. By rarefying the air near the surface of the cheese, it perhaps may cause its discharge, and prevent blisters. At six o'clock in the evening the cheese is again turned in the vat into another clean cloth. At this and the former turning, some dairy-women prick the upper surface of the cheese all over, an inch or two deep, before it is replaced under the press, with a view also of preventing blisters. At six o'clock in the morning it is again turned in the vat, with a clean cloth as before. The skewers are now laid aside. When the next day's cheese is ready for the press, the former one is again turned in the vat, with a clean cloth, and put under another press. At six o'clock in the evening, and at six in the morning following, it is again turned in the vat, using at these two last turnings two cloths finer than those which where before used, in order that as little impression as possible from the cloth may remain on the coat of the cheese.

"*Salting House.*—At noon the cheese is taken from the press (after having been there about forty-eight hours), a fresh fine cloth being put under it, which serves only as a lining to the vat, and is not turned over the upper surface of the cheese, as has been hitherto the case.

"It is then taken and placed nearly midside deep in brine, in a salting tunnel or tub; the upper surface of the cheese being covered all over with salt. It stands generally about three days in the salting tunnel, is turned daily, and each turning well salted; the cloth being twice changed in the time. The cheese is then taken out of the vat, in lieu of which a wooden girth, or hoop, is made use of, equal in breadth to the thickness nearly of the cheese: in this it is placed on the salting benches, where it stands about eight days, being well salted all over, and turned each day. The cheese is then washed in lukewarm water, and after being dried with a cloth, it is placed on the drying benches, where it remains about seven days: it is then washed in warm water, as before with a brush, and wiped dry with a cloth. After it has stood about two hours from this washing, it is smeared all over with about two ounces of sweat whey butter, and then placed in the warmest part of the cheese room.

"*Variation of Management.*—On the cheese coming into the salting-house, it is, in some dairies, taken out of the vat, and after its sides are well rubbed with salt, is returned into the vat, with a clean fresh cloth under it: the top being covered with salt, it is placed on the salting benches, turned and salted twice a day, and the cloth changed every second day. On the salting benches it is continued seven or eight days, when it is taken out of the vat, and with a wooden hoop round it, or cheese fillet, is put into the salting tunnel, and managed therein as before described. When cheese is salted on the benches, before it goes into the tunnel, it is only washed once, viz. before it is smeared with butter.

"*In the Cheese Room*: During the first seven days, it is every day well rubbed all over, and generally smeared with sweet whey butter; afterwards, a circular space is left, unrubbed, of four or five inches diameter, in the centre of each side of the cheese, which, as long as it is afterwards kept, is or should be, turned daily, and rubbed three times a week in summer, and twice in winter. Scraping the rind should be rendered unnecessary by frequent cleanings. In a warm room, the coat will easly be prevented from rising.

"Cheese rooms are commonly placed over the cow-houses; and this is done with a view to obtain that moderate and necessary degree of temperature so essential to the ripening of cheese, to which the heat arising from the cattle underneath, is supposed very much to contribute.

"The most desirable covering for a cheese room, as contributing to that even temperature so much desired, is thatch, for reasons that must be obvious. Before the cheese is brought into the rooms, the floors are usually well littered with what the farmers here call *sniddle*;* though wheat straw is frequently made use of for this purpose; but the knots of it are apt to leave an impression in the cheese. The aftermath of grass, well dried, seems to be a good substitute for sniddle. The labour of turning and cleaning cheese is performed almost universally by women; and that in large dairies, where the cheeses are upwards of 140lb. each, upon an average; this they do without much appearance of exertion, and with a degree of ease, which is matter of surprise even in this country."

MISCELLANEOUS OBSERVATIONS AND OPINIONS.

"Cracks in cheese are supposed to be owing to the use of lime as a manure;† to there being exposed, at any time after taking out of the press, to a current of air; but especially if so exposed, before they have sweated in the cheese-room.

"*Pungency and Rankness*—are generally attributed to the impurity of steep; or, which is nearly the same thing, to a neglect in scalding the steep-cup every day. Many ascribe it to the want of salt, as others think, unjustly.‡

* Coarse grass or rushes.

† The supposition that the cracks in the cheese are owing to the use of lime as a manure, seems in the highest degree improbable.—*A Correspondent.*

‡ Pungency, rankness, heaving, and running out at the sides, may all be ascribed to the imperfect separation of the curds and whey. To the same cause may be attributed the defects in spongy, eyey, and whey springy cheese: from the whey not being properly discharged, a fermentation takes place, and consequently a slight degree of putrefaction.—*Mr. Fanna.*

"*Hove Cheese.*—This is an imperfection derived from flatulence. as the general cause. The sweating of cheese is, undoubtly, a fermentation, and if this process of nature has been regular and complete, the flatulence is thereby expelled, and cheese is never subject to heave afterwards.

"But if the fermentation, or sweating, has been imperfect, which may happen from a variety of causes, indeed all the causes that check other fermentations, the cheese will be liable to become *hove* at any time; by the approach of a thunder cloud, by sudden changes of the weather from dry to rain; which effecting an alteration in the state of the air contained in cheese, will cause those to heave the most, in which the most impure air abounds: this is the case in cheese made from *rich*, and, at the same time, *various* herbage; but more especially *clover*, though the cows should pasture *uniformly* upon *it*. Hence it appears advisable, to get the cheese to sweat as soon as may be, after it comes into the cheese-room, as that is the only method to prevent the possibility of heaving, if it be flaculent.

"It is strange, however, that sof ar from any means being used to give a cheese-room the temperature most favourable to fermentation, nothing has been done to ascertain the degree of heat which usually prevails in it. Every dairy should be furnished with a regular sweating-room. When a cheese is made, there is certainly a specific time when its contained air and juices incline to fermentation; and that natural tendency should at that time be assisted. At present, the whole is left to chance; and at the very period, probably, when a cheese is beginning to ferment, the weather becomes suddenly cool; if the process is then checked, the inclosed air becomes putrid, especially if the cheese has been ill made; and the next fermentation is really putrefactive.

"It must be admitted, that the more perfectly the whey is got out of the cheese, by skewering, thrusting, and pressing, the less air will be left in it, and less will be the probability of air generating in the cheese. Perhaps cheese would be less subject to heave, if it were made of all cold, or all warm milk; viz. of one equal temperature, as the mixing of warm and cold fluids together generates air The usual remedy for this evil (heaving) is to weigh it down.

"*Blisters*—are supposed to be owing to the same causes as the former defect, but they are only a cuticular affection. The remedy is to open the blisters with a sharp pen-knife, and pour hot water into the incision; then press down the outer rind, put on a little salt, and place a piece of slate and a half-pound weight upon it.

"*Running out at the Sides.*—This is derived from the same cause as heaving. A cheese that runs out at the sides is supposed to have been short of pressing: the remedy is to bind it round tightly with a cheese fillet.

"*Sourness*—In hot weather it requires circumspection to prevent the milk from becoming acid, before it goes into the cheese-tub; especially in ill situated milk-houses. Sometimes when the cheese is long in coming, it will turn sour even in the tub, and for this there is no remedy but previous care.

"*Spongy, Eyey, and Whey-springey Caeese.*—These faults do not arise from want of skill in the maker, but from the grossest laviness and inattention; such defects are seldom heard of in Cheshire. The certain preventatives are careful breaking, good thrusting, frequent skewering, and powerful pressing.

"*The Milk of Cows*—which have newly calved, if the quantity of it be considerable, has a tendency to cause the cheese to heave: the first meal's milk that goes into the cheese-tub, is generally the sixth or seventh from calving.—Others never having observed this tendency, always put the third meal from calving into the cheese-tub.

"*Pastures.*—The frequent change of pasture is thought to be very material to the milk product of cows. In the height of summer, they have frequently a day-pasture and a night pasture; and this regulated by the circumstances of water and shade; but there are those who prefer a range of pasture, and a frequent change also, as most desirable for milki g cattle.

"*Salt.*—Twenty-eight pounds, or half a bushel per week, on the average, is sufficient through the summer for da r es where s x y pound cheeses are made, including the other domestic uses of a moderate sized family. The greatest quantity of salt expended on one sixty pound cheese, that we have heard of, is about three pounds; but how much of that actually remains in the cheese, no one is able to say: of the salt put in it when breaking, much is discharged by the thrusting, &c. Whether it acquires much saltness in the salting-house, dairy-men themselves are doubtful, although much salt is there expended; but there cannot, we think, be any doubt, that the greatest quntity of salt ever used in cheese is insufficient to effect the purpose for which it is intentionally used, which is an antiseptic. According to Dr. Pringle (see his Observations on Diseases of the Army) it must act as a septic: exp rience, or at least the common practice and opinion seem to contradict the unqualified assertion, "that salt promotes the putrescency of cheese:" but that it does promote it (though at the same time it may vary the natural process of putrefaction in cheese,) is an opinion, perhaps, well founded. The putrescency, or ripening of cheese, we therefore conclude, to depend much upon salt; but this is a subject that merits investigation."

"*Number of Women Servants*, &c.—There is, in general, on dairy farms, one woman servant to every ten cows: these women are employed in winter in carding, spinnin, and other housewifery business; but in milking, the woman, both night and morning, during summer, where large dairies are kept, are assisted by all the other servants, men and boys, except the man who drives the team."

Lottery Extraordinary for the encouragement of DOMESTIC INDUSTRY.—A company of ladies have projected a lottery for the above purpose, in which every batchelor or widower who purchases a ticket, will be entitled to a valuable prize *without any deduction.*

On the use of Lehigh Coal.—This article of fuel is perhaps as abundant as wood, supposing the entire surface of our country was covered with that article. Coal, however, enjoys the peculiar advantage of being collected or formed in a small compass, so that one or two roads reach the entire supply; hence the economy of making but two good roads, in the place of perhaps 1000 which now ramify our forests for the present supply of fuel so that the means of a general supply is certain, as well as central and convenient, and to be had at half the price of wood for fuel. But say some of our Philadelphians, the prejudice of public opinion is in favour of wood and against the use of coal. Such was the opinion of the citizens of London, when Coal wns first proposed to be used in that city as a substitute for wood, with the additional belief that the sulphureous smoke and dirt, arising from the burning of this bituminous coal, would be injurious to the health of the city. It was about this period that the city was visited by the extraordinary disease called the plague, and therefore the great objoction to making a change in so essential an article as fuel. However, it so happened, that the coal came into the market, cheaper than wood, and it was used abundantly, when to the astonishment of the mass of the community, the city proved to be healthier, and that dreadful pestilence never revisited them. The history of all countries proves that where coal can be had cheap and plenty, it is invariably used in preferencc to wood or any other fuel.—At Wilkesbarre on the Susquehanna river, coal of the Lehigh kind is found in abnndance, and is there used in preference to wood, however convenient may be the wood. In the western part of this state, also, coal is used in preference to wood, in the midst of forests. If they, thus use *sulphur* coal, in families, wherever it is fonnd plenty and cheap, of the use of Lehigh coal, with all its additional advantages, there can be no doubt, especially when plenty and cheap, which it must be, as soon as the navigation of the river is completed.

Some of the advantages of Lehigh coal over the sulphur or bituminous coal, are that it is free from all unpleasant smell:—it is free from all smoke or black or yellow dust, in burning it the residue in a parlour grate is clean white ashes, and consequently the chimney never gets foul, nor wants cleaning. It is also a much more durable fire, and its beauty in an open parlour grate, exceeds any other known fuel. For all manufacturing persons, the heat being more regular, more durable and more intense, it causes a saving in fuel, in many branches, greater than the entire cost of the coal.—*Dem. Press.*

Cure for a Sprain or Bruise, when the Skin is not broken.—Put the part into warm water—if the ankle, let the water take in the foot and half the leg—continue it in the water for 15 or 20 minutes, and repeat it for 4 or 5 times for the first 24 hours after the injury; put the limb into use, after bathing, by walking moderately. This will generally effect a cure—but, if not, the bathing can be repeated a few times the following day. This has been found a certain cure in many cases, and failed in none.

A New System of Cultivation,

Without Lime, or Dung, or Summer Fallows: as practiced at Knowle Farm, in the County of Sussex. By Major-General Alexander Beatson, late Governor of the Island of St. Helena, and Honorary Member of the Board of Agriculture.

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"Petty operations, incessantly continued, in time surmount the greatest difficulties, and mountains are levelled, and oceans bounded, by the slender force of human beings."—*Doctor Johnson.*

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ON THE ADVANTAGES OF PULVERIZATION.

Further illustration of shallow ploughings—scarifier compared to four small ploughs—Its power computed—Can pulverize with one horse an acre of light soil per day—Example of pulverizing at the expense of eight shillings and four pence per acre—Comparison with the old Sussex practice—Scarifier an excellent substitute for the plough—Hints upon using it—Can stir the land to the depth of ten inches—Loose and porous condition of the soil after its operation—Tull's opinion of pulverization—St. Helena experiment on frequent stirring the soil—Proves the beneficial effects of atmospheric influence.

In explaining this new system of cultivation, I have shown the progressive stages that have led to a very great reduction in the expense of manuring lands, and the means already adopted, as well as those I propose, for the total abolition of fallows. Upon these subjects, therefore, it would be superfluous to add more: but upon pulverization, and the mode of preparing the land for the seed, and upon diminishing the quantity of labour in that preparation, I have yet to offer a few remarks, with some suggestions that have resulted from recent experience, which I think will induce me to adopt even a more economical method of pulverizing the soil, than that which has been already described.

The effects of deep and shallow ploughings, have been noticed in the preceding section; and, I trust, I have demonstrated the advantages of the latter; and that, by taking only that depth of furrow which can easily be ploughed with *two* horses, and repeating the operation, that the end proposed, (that is the same depth of ploughing,) will be attained with only *one half* of the animal exertion which would be required to plough the same depth with *four* horses at *one* operation.

The illustration I have given, in page 23, may be carried still further—by supposing the same four horses (which had ploughed, at once, six inches deep, and had overcome the resistance of 6×6=36) applied, separately, to four light ploughs, or other implements—and to plough only 1 1-2 inch deep at a time, and to go over the same land four times. In this case the sum of all the resistances to be overcome, or the animal force expended, in these repeated ploughings, would be more than 9 instead of 36; because the square of 1 1-2=2 1-4, which multiplied by the four ploughings, gives 9, or only one fourth of the power expended in ploughing at once six inches deep.

Hence, it appears, that in ploughing six inches deep, with four horses, each horse exerts a force =9, whereas, in taking only 1 1-2 inch deep, the force he exerts is not more than 2 1-4.

Again, supposing that a horse exerts, in drawing a plough, a force of 160 pounds,* it is evident, if four horses are ploughing six inches deep, the total force exerted will be 640 pounds; or 160 pounds by each: but, if they be required to plough 1 1-2 inch deep, at a time, then the total force expended by the four horses will be only 160 pounds, or 40 pounds by each horse.

This leads me to the principle on which my small scarifiers are constructed. They have four hoe tines in the hind bar, and I will suppose that there are four harrow tines (instead of three) in the front bar, so that each scarifier may be considered as four small ploughs, with four shares and four coulters. If we suppose one horse attached to this implement, and that the force he exerts is 160 pounds, it is obvious that in scarifying to the depth of 1 1-2 inch, he will exert those 160 pounds upon the four pairs of tines, or a force of 40 pounds upon each pair.

But, in fact, the force required to draw the scarifier will be considerably less than to draw any form of plough—because the hoe, or share tines, being much thinner and sharper than a plough share and mould board, will, of course, meet with much less resistance in stirring the soil.*

Having often observed that a small scarifier, with a single horse, (taking with its tines a breadth of 27 inches,) easily passes over three acres a day, and that this operation performed three times, upon arable land, produces a good depth of pulverization, particularly when the land is a little softened by rain, I resolved to make an experiment for the purpose of ascertaining the possibility of speedily obtaining all the objects of a fallow, and of four ploughings, of an acre, *with the power of only one horse for one day*, for each acre, instead of *twenty*.

The result has been, that a very good tilth is absolutely attainable on light lands, after three scarifyings; and at the expense of five shillings per acre: but on a stiffer soil, the power I used in the autumn of 1818, in preparing for wheat after tares, was that of 1 2-3 horse for one day: so that the expense of this mode of preparation, was *eight shillings and four pence per acre.*

A field of two acres was allotted for this experiment. One half was bulk-ploughed, twice scarified, and harrowed once. The other half was entirely prepared by the small scarifier,—which, after five scarifyings, produced as fine a tilth as that which had been bulk-ploughed and scarified. Two bushels of wheat, per acre, were drilled. No difference was perceptible during the growth of the crop, nor at the time of reaping. Throughout the whole field it was even more exuberant than any of my other crops; and this is the more surprising, as the land had received no manure after the three preceding crops. It yielded 460 sheaves of 30 inches in circumference per acre; whilst the average produce of the other fields did not exceed 360. This superiority I ascribe to the very fine pulverization of the soil.

The result of this experiment clearly proves that the least expensive method of preparing the land for wheat, after tares, beans, peas, or clover, is simply by using the scarifiers. In the first example, (page 22) it will be seen, when the land was ploughed, and afterwards harrowed and scarified, the expense amounted to seventeen shillings halfpenny;* but when scarified, *without using the plough*, as in the 2d example, the same depth of tilth, and the same degree of pulverization was obtained in the experiment abovementioned, at an expense of only *eight shillings and four pence per acre!*

In page 8 and 29, I have shown, by facts, which cannot be controverted, that those farmers, who adhere to fallows and the old Sussex husbandry, incur the enormous expence of *l5. 13s.* per acre, for obtaining a less degree of pulverization than I did actually obtain, in the field abovementioned; and in several other instances, at the very trifling expense of *eight shillings and four pence per acre.*

Indeed, during the last two years, I have made but a very sparing use of the plough; and this has enabled me to prepare the lands with much greater expedition than formerly—a matter of no small importance to farmers; and so far as I can at present determine, after having recently ascertained so very economical a method of preparing lands for the seed, I think it is highly probable I shall soon be able to dispense entirely with the use of the plough—excepting for the purpose of making drain furrows, or for paring grass land for burning: particularly, as I have lately experienced that ploughing, or baulk-ploughing, are rather impediments to these scarifiers.

If the slags lay firm on the field, they will then oppose sufficient resistance to the scarifiers, and the surface soil will be broken and pulverized: but, if they lay loosely, which is the case after a recent ploughing, they will be torn and dragged from their places and the whole field will be covered with long and tough sods, which it would be even more difficult to subdue than the clods of the fallows.

It is very possible that the idea of cultivating a farm *without using a plough*, may be treated as absurd and ridiculous—and may draw upon me the imputation of arrogance and presumption, in daring to call in question the superiority of the plough—an implement celebrated by poets—described as "the most useful instrument that ever was invented"—and which has been in use from the earliest ages. Mr. Locke indeed observes, that, "it is looked upon as an *insolence* for a man to adhere to his own opinion, against the current stream of antiquity;" but, with all due deference, I confess, I can perceive neither arrogance, nor presumption, nor insolence, in departing from opinions or customs, (however ancient,) whenever it is proved by facts that it would be advantageous to do so.

This method of cultivation, *without using a plough*, is not entirely my own—excepting, I be-

* Emerson affirms, that a man of ordinary strength can act a whole day against a resistance of 30 pounds. The strength of a horse is generally allowed to be equal to that of five or six men. I have therefore assumed 160 pounds as the power of a horse. In the valuable work, entitled "*Nouveau cours complet d'Agriculture*," the power of a horse in drawing a plough is estimated at 150 French pounds.

"Under *cheval*, it is thus stated, "*Deux chevaux atteles a une charrue, et par consequent n'allant qu'au petit pas, dans une terre, ni trop aisee, ni trop difficile, ont ete estimes faire chacun un effort de 150 livres*"

* Experience having shown that a single horse, without much exertion, easily draws the scarifier, I did not deem it necessary to include, in the computations, the small resistances occasioned by the loose soil laying on the surfaces, after the first, second, and third scarifyings.

* Ploughing once - - - - - - l0 12 0
Harrowing - - - - - - 0 0 10 1 2
Scarifying three times - - - - 0 5 0
17 10 1-2

lieve, *in applying it to a whole farm.* It has been partially introduced in England for many years. Mr. Arthur Young, in his directions for wheat, after beans, states, that, "it will be more advantageous to trust to the *scarifiers* than the plough: and, speaking of wheat after tares, he says, "the land *should not be ploughed at all*, but left to consolidate at bottom, to become firm for the roots of the wheat to fix in, and the surface *worked with the scarifiers*, just sufficient to keep it clear of all weeds, and in that state drill the wheat, *without any ploughing*. This I have practised with good success." *Farmer's Calender*, p. 457.

Mr. Young also relates, "a very singular experiment of Mr. Ducket, in preparing a clover lay for wheat." He had a field in which wheat rarely escaped being greatly root-fallen: *he scarified it repeatedly*, till he had torn up the clover, and also gained tilth enough for drilling in: then he collected the clover fragments, and carted them into the farm yard to make dung, and drilled the field: the wheat having a firm bottom in an unstirred soil escaped the disease, and yielded an ample produce."

Again—Mr. Cook says, that "he cannot consider the plough and harrow of any other use than to attain a proper tilth or pulverization, all which may be obtained by a proper and seasonable use of the cultivator, (or scarifier) in half the time, and at half the expense."

M. Bosc, a French writer on agriculture, says, "there are some farmers who sow their turnips and buckwheat, vetches and other grains, upon lands prepared by the *Binot*, or even *by the harrows*. What economy," says he, "does this sort of culture present! Besides, *when the land is thus constantly covered mith plants, the effect of heavy and beating rains is much less felt.*"*

I hope these quotations and opinions, (which are fully confirmed by my own experience,) will serve to illustrate the vast utility of the scarifier, and will be sufficient to justify the idea I entertain *of the practicability of working a farm without using the plough.*

I lately made an experiment with a one horse scarifier, in order to ascertain the depth to which it would penetrate the land. The soil was stiff, and had been previously bulk-ploughed, and twice scarified; when it had received six additional scarifyings, the tines had gone to their utmost depth, that is, ten inches. Thus the objections started by the neighbouring farmers, to the use of such light implements, were completely refuted; for, by the power of one horse, a greater depth of pulverization was obtained by eight scarifyings, than by any plough with four horses, and at a much less expense.

To produce a sufficient depth of tilth upon stiff land, I will suppose, in some cases, it may be necessary to scarify six times. The expense of these repeated operations would be no more than ten shillings; since it is only two days work of one scarifier, at five shillings for the day labour of a man, a boy, and a horse: and this perfect pulverization of an acre, is in this manner attained with the labour of only two horses for one day.

Moreover, the land after those six scarifyings, would be loose and porous, and in the finest condition for allowing the atmospheric air, to introduce itself amongst the minute particles of the soil; for permitting the rain and dews to spread eqnally, and for giving to the roots the facility of entering into all the cavities.

Very different from this would be a clodded surface after three or four ploughings: perhaps towards the close ef the fallow, or after the last ploughing, and rolling and harrowing, some little benefit might be expected; but, until these finishing operations, the strong cohesion of the clods would absolutely prevent the admission of air and moisture.* These reflections arose during last autumn, when I observed, even so late as the middle of August, many stiff land fallowed fields covered with immense clods, intermixed with thistles and other weeds. The only advantage derived from this sort of fallowing, appeared to consist in the destruction of the parent weeds, as many of them that had rooted in the clods, would no doubt be destroyed by the heat and drought. At that time, the seeds of weeds which had come up in the interstices, exhibited a vigorous crop; but the greater proportion of them was still shut up in the clods, reserved to grow with the wheat, and to share with it all the advantages of the fallow.

Tull was of opinion that land can never be made too fine by tillage; and that the finer it is made the richer it would become. "I have had," says he, "the experience of a multitude of instances, which confirm it so far, that I am in no doubt, that any soil can be made too fine by tillage."

That land is greatly ameliorated by pulverization and exposure to the atmosphere, is a fact that is well known: but whether by pulverization alone, it can be made to produce good crops in succession, without manure, is a point I have not yet suffiiently ascertained. I have reason, however to believe, from the result of two small experiments at St. Helena, that the beneficial effects derived from the atmosphere, are much greater than are generally imagined.

In the year 1810, those experiments were established for the purpose of ascertaining the effects of frequently stirring the soil† A very unpromising spot was selected: the soil a pale brown friable clay, which in some parts was bare and barren, in others producing nothing but the coarsest sort of tufted grass. The space for the experiments (measuring two rods in length and one in breath,) was divided into two equal parts. No. 1. was broken up on the 11th of December, by trenching with the spade, to the depth of ten or twelve inches. From that day until the dibbling of the seed, on the 23d of February 1811, it had been at equal intervals, five times stirred or turned. One half of No. 1. was then dibbled with potatoes, and the other with barley: and at the same time, the adjoining square rod was broken up, and dibbled in every respect, in the same manner.

The soil of No. 1. by frequent stirring, had become after ten weeks exposure. of a much darker hue than No. 2. and the potatoes and barley upon the former, were infinitely superior to those of the latter, insomuch, that the tufts of young barley were, on the 22d of April (the last notice I have of the experiment,) at least, five or six times more bulky than those upon No. 2.

This result most clearly proves, that the superiority of No. 1, is wholly to be ascribed to the free admission into a well pulverized soil, of all the various nutritive principles with which the atmosphere abounds, for the purposes of vegetation,* and the inferiority in the produce of No. 2, affords also a positive demonstration, that when it is practical, without too much retarding the farming operation, a certain time ought to be allowed for a thorough impregnation of those valuable ingredients before the crops are put in the soil.

But, when circumstances may not admit of sufficient time being allowed, similar advantages may in a great measure be obtained by a perfect pulverization in the first instance; and by occasionally stirring and opening the soil between the rows during the growth of the crop. By these means, the process of impregnation or absorption of the atmospheric benefits, might keep pace with the growing corn.

Upon the whole, I think it may be inferred, that pulverization by implements, produces effects equal, if not superior to those of manure. Indeed the above experiments seem to confirm the opinion of Jethro Tull, that it is even superior in its effects to common manure.

"I can show at this instant," says he, "one of the experiments I have recommended, which, though it be no less than two perches of ground, that must convince every man who sees it, (and doth not renounce the evidence of his reason and senses,) that *pulverization by instruments can vastly exceed the benefit of common manure.*"

This opinion of so celebrated an agriculturist, corresponding with the results of the experiment No. 1, has tended to confirm that which has been already noticed,—"that I was rather in doubt whether a considerable share of the effect produced, apparently by the calcined materials, ought not to be attributed *to the extreme fineness to which the soil was reduced by implements of small power.*†

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* Sir John Sinclair, in his hints on the Netherlands, has given an engraving of the *Binot*. "In some respects," says he, "it resembles a plough with a double, or scuffler, share. By means of this implement the land *is not* turned over, as by the plough, and the weeds buried." Hence, the effects produced by the Binot are exactly similar to those of the small scarifiers: with this difference, that these require a much less exertion of animal strength.

* Mr. Tull, very justly observed, that "the fine parts of the earth are impregnated with some of the riches carried in by the dews: but the larger rough parts cannot have that benefit: the dews not penetrating to their centres, they remain poorer."

† This experiment is detailed in page 28, Tracts on St. Helena.

* That we should seek or expect manure from air, will by many of my readers, probably be deemed a very chimerical hope However fantastical this may appear, it is not less agreeable to reason, than confirmed by experience, that the atmosphere is complete with real material substances, which though too much subtilized and refined to become the direct objects of our senses, afford the true and genuine pabulum of vegetable accretion and augmentation, without which the whole vegetable kingdom would languish and finally decay and expire. From whence these substances originate, and how they are from time to time supplied, is, I conceive, a question of no very difficult solution." (See *Wimpey's Rural Improvements*, p. 225.)

† M. Bosc a French writer on agriculture, highly disapproves of a cloddy surface, and considers the plough, as the worst of all implements for stiff lands.

"Sont-ils labourreurs," says he, "ces conducteures de charrues qui retournent *des mottes de terres d'un pied de large sur deux ou trois de long, et un demi d'epaiseur? Non, Ce n'est* qu'en multipliant les sillons, les coutres, en choisissant la charrue la plus propre a emietter la terre, qu'on peut dire avoir remplis son objet; et encore, malgre toutes ces precau-

To those therefore, who may be disposed to give a trial to the calcined materials as a manure, I would strongly recommend that they obtain before or after they are laid, a perfect pulverization of the soil. Even the calcined materials should be reduced to a fine state; the finer they are, the more immediate and powerful will be the effect. Of this I had a most convincing proof, in observing the progress of the four experiments mentioned in page 13. Every successive inspection of these experiments, more and more impressed me with a high opinion of the efficacy of burnt clay as a manure: and therefore, I immediately resolved to extend the cultivation of wheat, from four square rods, to upwards of twenty acres.

Upon this scale of cultivation, my success was equal to that of the experiments; the wheat yielded a return of twelve for one of the seed.—This was about thirty-three per cent. better than the usual return in this vicinity; which upon an average is only eight from the seed; or twenty bushels (the average produce) from two and a half, and sometimes three broadcasted, on an acre.

It may well be supposed that this success gave me the fullest confidence. The following year I extended the culture of wheat to even one half of my arable lands. The crops were excellent; and I am perfectly confident, if it were expedient, that by means of fine pulverization, and a proper application of the calcined materials as a manure, I might continue that proportion of land annually in the culture of wheat. The objection however to this mode of cultivation is, that the labour of the farm could not be sufficiently divided. There would be a great pressure immediately after harvest, and a disproportionate demand for the full employment of the teams in the spring months.

For this reason, I give a preference to a four years' rotation, because one fourth of the land being in clover, is at rest; and the remaining three fourths in cultivation. This reduces the labour which is equally divided between the winter and spring preparations.

The circumstances of the four experiments in page 13, and above referred to, deserve particular notice, as they may justly be said to be the origin of my present practice of cultivation.

At the time I was superintending the dressing of those experiments, the wind blew strong from the north, which caused the powdered dust of the calcined clay, when thrown out of the shovel, to pass beyond the southern boundary of the experiments, upon a space that was left unmanured, This circumstance attracted notice, and it was entered in my farm journal. Soon after the crop came up, I observed a very visible improvement where the dust had fallen. This improvement gradually becoming more visible, reminded me of the effects I had read of gypsum. And I will venture to affirm, it was infinitely greater than could have been produced by an equal quantity of lime. This indeed was admitted by the most intelligent farmers who viewed it. The effect of the dust was decisively marked during the growth of three successive crops; so that, by this accidental circumstance, it is clearly ascertained that calcined clay, is a more permanent manure than rot dung; for on the dunged part of this field around the unmanured part of the experiments, the second crop was miserably poor, and the third much worse; whilst the fourth experiments dressed with calcined clay, at the rate of ten, twenty, thirty, and forty cart-loads, (or from one hundred and sixty to six hundred and forty bushels) per acre, even surpassed that superiority which they had shown during the first and second crops. This progressive improvement, after the soil might have been supposed to have been deteriorated by the two preceding crops, can only be attributed to the lumps of this valuable manure having been reduced to smaller particles, and consequently, more intimately intermixed with the soil.

Although my experiments have been numerous, yet many important points remain to be ascertained. Amongst these is the effect of calcined clay, or other earths, reduced to a perfect dust, and compared with an equal quantity of well pulverized lime. Should the effect of the former be equal to that of the latter, (and I think the circumstances above stated hold out a prospect that it may be superior,) what a valuable discovery would this be! How infinitely more valuable might landed property be made, if lime can be dispensed with, wherever it is too expensive: and if some of the millions of loads of straw that are annually consigned to the dunghill,* were applied to the more valuable purpose of feeding animals. It is not perhaps too much to say, that by these changes, and by the general introduction of calcined earths instead of lime or dung, several millions sterling, might thus be added to the value of landed property. I have tried those materials on corn, potatoes, hops, and grass land, and in every instance they have proved efficacious: I am therefore of opinion, that by combining their use with the drill husbandry, the agriculture of the kingdoms might be carried to a pitch of improvement, far beyond what has ever entered into the minds of financiers.

The burning of clay for manure, appears to have been introduced in England and Scotland about the year 1730: *and was found to answer better than either lime or dung*; but the expensive mode of burning it, seems to have rendered it too costly.

Now, as this objection to its general use has been entirely removed, it is hoped that the examples of Mr. Curwen, Mr. Boyd, Sir H. M. Vavasour, Mr. Craig, and many others, may become general throughout the kingdom. I suspect, however, that the slow progress which has hitherto been made, has proceeded from some failures or disappointments, occasioned by defective burning, or by inattention to pulverizing the soil and the burnt clay. It is very evident that if the soil be rough and cloddy, and the burnt clay be laid on in large lumps, there cannot be one tenth (or perhaps even a twentieth part) of the effect produced, that there might be if both the soil and the manure were pulverized, and intimately blended together.*

tion de labour a la charrue sera toujours le plus mauvais, au moins dans les terres fortes."

* This is a practice unknown in India; and I believe in China, and in many other countries. Lord Kames very justly observed forty years ago, that "a provident farmer will never waste his straw by throwing it on a dung hill; he will provide as many winterers, as to consume all the straw that is to spare from his working cattle. Winterers put up in a house save straw; and the beasts are more regularly fed, and their urine can be wholly preserved: whereas in a farm-yard all is lost but what happens to fall on the dunghill.

* "The intimate mixture of manure with the soil is the great circumstance of vegetation. In order to that end the soil ought to be highly pulverized, and the manure divided into its smallest parts. Lord Kames' Gentleman Farmer, p. 389.

THE PLOUGH BOY.

ALBANY: SATURDAY, APRIL 7, 1821.

TO THE EDITOR OF THE PLOUGH BOY.

Columbus, Ohio, March 21, 1821.

DEAR SIR,

Among the many interesting subjects relative to agriculture, discussed in your valuable paper, I have yet seen nothing on *one* which is beginning to excite some interest in this country, owing to the very reduced prices of the common products of our husbandry. The small white bush, or bunch BEAN, always finds a ready market at New-Orleans, and in most of the ports on our seaboard; yet, it is raised in very small quantities, in this state and Kentucky. Indeed, the generality of our farmers think it too *trifling* a business; while their wheat and corn are rotting on their hands, not commanding even a sufficient price to compensate the labour of hauling them to the markets of the neighbouring villages.

An opinion prevails here that our soil is *too rich* for the profitable culture of the *bush bean*, (called, I believe, at the eastward, the *fisher bean*) Some think that the growth will be too luxuriant; that the bean will *run all to vines*; and that a poor gravelly soil, is the only one proper for their profitable production. Others think we have not the *right kind* of seed; and all are ignorant of the best mode of cultivation.

An early essay on this subject, from some experienced farmer, would be very acceptable, in which the following points should be particularly embraced:

The soil best adapted to the culture.
The manner of preparing the ground.
The time and mode of planting, or sowing.
The manner of cultivating.
The proper time for gathering, threshing, &c. and the probable number of bushels that might be produced to the acre, if properly attended. Also a minute description of the *right kind* of bean.

An experiment was tried in this town last year. The yield was not so abundant as was anticipated; but the season was not esteemed a good one. The beans ran much to vines, although they were supposed to be *the real yankee bush bean*. The soil was not so fertile as the common soil in the neighbourhood. The gentleman who made the trial, thinks that an acre of the *right bean*, well ploughed and hoed, would produce from 80 to 100 bushels. In this I think his calculation too large, although he is not alone in his opinion. But, allowing only thirty or forty bushels to the acre, the product would then be more profitable than five acres of corn or wheat.

Your attention to the foregoing suggestions, will confer a particular obligation on

Your most obed't. servant,
J. B. GARDINER.

N. B. Our present *cash* prices of produce are—

Corn,	16	cts. per bushel.
Wheat,	25	
Oats,	12 1-2	
Beans, com. kind,	$1 00	
Pork,	1 50	per cwt.
Beef,	3 00	
Cheese,	8	per lb.
Butter,	8	&c. &c.

Solomon Southwick, Esq. Albany, N. Y.

Foreign Agricultural and Scientific Notices.

From the 15th to the 22d of January, 28391 bales and bags of cotton were imported into Liverpool; from New-Orleans 3178; from other parts of the United States 14626.

In the Morning Chronicle of December 10, among other publications announced from the English press, we observe the "*Memoirs of the Mexican Revolution*," by Wm. D. Robertson, about to be published in two octavo volumes, with a fine portrait of General *Xavier Mina*, engraved from an original picture, painted a few weeks before he left England.

According to a "View of all the known Languages and their Dialects," published by M. Fred. Aderburgh, of Germany, their number amounts to 3.064, viz: in all Asia 937, European 587, African 276, and American 1,264.

At Petersburgh, M. Salvatori, announces the discovery of a remedy for the hydrophobia. In man or animals, attacked with this dreadful malady, small whitish pustules appear near the ligament of the tongue, which open spontaneously the third day after the bite; at this crisis the first symptoms of the real disorder become manifest. By lancing these pustules nine days after the bite, by extracting all the humour, and washing the mouth well with salt water, the fatal effects, according to Mr. S. are prevented. Several individuals have beeu saved by this process.

London Corn Exchange, Jan 26.—A considerable quantity of Wheat remained over from Wednesday's market, for which there was but little demand this morning, and the sales were heavy even of the finest qualities at Monday's prices. The arrivals of Barley have been large this week, and although prime picked samples sold at Monday's prices, all other descriptions were heavy sale, at an amendment of 2s. per. qr.—In Beans, Peas, and Oats, there is no alteration.

New South Wales.—Nothing can better exemplify the thriving condition and general prosperity of New South Wales and its dependencies, than a comparative view of an increase of stock at differnnt periods. By a census taken at the end of the year 1800 (twelve years after the foundation of the colony) the number of horses was only 163; of horned cattle 1024; and of sheep 6144; at the end of 1813, the horses had increased to 1894; the horned cattle to 21,513; and the sheep to 63,121; and at the end of 1817 the horses had further increased to 3172; horned cattle to 44,748; and sheep to 170,420.

A new mode of boiling sugar, by passing heated oil through it, is successfully practised in London.

Caution to farmers and others.—Several convictions have lately taken place in the neighborhood of Salisbury, under the act of 52d of Geo. III. for killing rabbits without having previously taken out a licence. The penalty is *l*20 over and above the licence, (which must be taken out annually) which is *l*3 13*s*. 6*d*.

A farmer in the commune of Donnemaire, lately found, whilst at work in his field, two antique statues of bronze, six inches in height; one a Mercury, with a winged Pegasus on his head, the other Fortune with her usual attributes. He also found a cock, and she-goat, both of bronze; two copper miniature medals, oue of the Empress Severina, wife of Aurelian, the other the head of the Emperor Probus.

At the sale of Mr. Kemble's library, a fine collection of old plays was purchased by the Duke of Devonshire for 2000 guineas.

The commissinoers for victualling the British navy, gave notice that proposals would be received on the 2d Feb. for supplying 6945 barrels American flour, to be delivered at the different West India stations, between the 15th May and 20th Nov.

A living insect of considerable size was lately extracted from the external part of the throat of a poor woman, which had generated into a tumor of two years standing.

Two turnips were lately grown on land in England, one of which weighed 17 1-4 lbs. and measured three feet two inches in circumference, the other 16 1-2 lbs. and measured three feet in circumference.

The English papers state that there were raised in one garden last season, 8 bushels of potatoes, being the produce of one potatoe.

A Spanish translation of Dr. Ramsay's Life of Washington, was published in Paris in the year 1819.

A translation of the *New Testament*, by Gilbert Wakefield, has been lately reprinted at Cambridge.

Mr. F. Wall, of Brinsey, Congresbury, purchased at Wells Market, last spring, a potatoe, (the *Never blossom*) weighing 1 3-4 lbs. which he cut into sets and planted. At last digging time it yielded 135 lbs. of fine potatoes.

The French naturalist, Bonpland, the former travelling companion of the celebrated Humbolt, left Buenos Ayres on the 1st October, to explore the coasts and harbours of Parana and of Paraguay, and to penetrate into the interior of the latter province.

The French papers announce the discovery of a new species of nautical and commercial Telegraph, which is about to be established by a company of merchants at their own expense. The new telegraph can be used with equal facility by night as by day; it is less expensive than the old system; can communicate to a greater distance; and will not be impeded in its operations, except by fogs and vapours of extraordinary density.

The Paris Monthly Journal, La Revue Encyclopedique, for November, contains an article on the actual state of Steam Boat Navigation in this country. It is signed A. Klinckonstrom, of the Staff of the King of Sweden. This gentleman made the tour of these States two or three years ago.

Two works have lately appeared at Constantinople, which give us a favourable opinion of the progress of knowledge in Turkey: one is a Dictionary of the ancient and modern Greek; the other an elegant translation into modern Greek of Voltaire's romance of "Zadig."

A female specimen of the Hollow Sonnding Bittern, now peculiarly scarce in this country, was lately shot in a meadow, near Worcester.

In drawing a wild duck, recently shot by Capt. Blackman, of Boreham-street, the servant discovered within it a vegetable substance, curiously formed, and shaped like a pear. It measures in circumference 8 inches, and when extracted from the bird, weighed 9 ounces.

The vast collections of Natural History, of the College Museum of Edinburgh, which has been accumulating for years. was on last Christmas day laid open to public inspection.

Professor Ooeller, of Cologne, has discovered in the Royal Library, at Bamberg, a MS. of Livy.

Oil gas.—At a meeting of the principal inhabitants of Hull, it was resolved, that the streets and public buildings of the town and neighbourhood, should be lighted with oil gass.

The Right Hon. F. Robinson, President of the Board of Trade, has lately visited Manchester, Sheffield, and other manufacturing towns, probably to lay the foundation of some Parliamentary measures for their relief.

Dr. Hutchison, of the Royal College of Surgeons, has published an account of six successful cures of the *Doulourеaux*, by the preparation of iron, denominated *Fevri Carbonas* in the London Pharmacopœia.

In England, navigation is estimated at only one twentieth the cost of land carriage, and its effect is the same as reducing the distances between places in the same ratio.

The editor of Blackwood's Edinburgd Magazine states, that the sale of that work is now near 17000—the Quarterly Review, about 14000—Edinburgh, upwards of 7000—Gentleman's Magazine, about 4000—British Critic, 4000. They say also that the Magazine neats the concern *l*.11,750 per annum, or more than 52,000 dollars.

A supplemental volume to Bisset's History of George III. is just published.

A *Constitutional Catechism* has been published at Naples, fitted to instruct the mass of the Neapolitan population, in their political rights and duties, according to the new system. Among other late productions of the Neapolitan press, is a small popular tract, on *the Crusade of the Holy Alliance against Naples*. The Neapolitans re exhorted to follow the example of the inhabitants of Parga, rather than submit to a tyrannical dominion—"to seek a new country in the hospitable land of the Americans."

Weekly Summary.

A letter from an officer of the U. S. army, dated at St. Peters, Sept. 27, states, that the detachment was busy in erecting a permanent fort; but were in the mean time much exposed to the hostility of the savages, 300 of whom were about to visit them to demand the release of two Indians whom Col. Snelling had taken and detained as hostages for murder.

Com. Porter is to proceed to the Pacific Ocean, in a line of battle ships, with two frigates, to protect the American merchantmen in that sea

The Macedonian frigate, from the Pacific, and the Columbus, from the Mediterranean, are expected to return home this summer. The Congress frigate from China, is expected daily.

Major General Brown and Brigadiers Gaines and Scott, are retained in service under the new regulation of the army; and that they have been ordered on to Washington.

The Auction store of Messrs Napier, Rapelye & Benson, was robbed on the 7th ult. at Charleston, S. C. The robbers secreted themselves in the store previous to its being closed for the night. After which they struck a light, and proceeded to rifle the desks of their contents, (17 in number.) Having succeeded in obtaining money to the amount of about $600, which belonged principally to the clerks of the store, they made off.

The British government brig Ann, Capt. Bigland, arrived from Havana, via Charleston, with $300,000 in specie, for several mercantile houses.

In Tennessee, in addition to an appropriation of a section in each township for common schools 200,000 acres have been assigned for the endowment of colleges and academies Large appropriations have also been made in Ohio, Indiana, Illinois, Mississippi, Alabama, Louisiana, Missouri, Michigan, and the North Western Territory, for the erection and maintenance of seminaries of learning of a higher grade than common schools.

Mr. Clay was lately complimented with a public dinner by the citizens of Washington, on account of his public services.

Distressing Fire—On the evening of 6th ult. the dwelling house of Ann Dudley, widow of Evan Dudley of Evesham, near Morristown, N. J. was consumed with all its contents. The family, consisting of eight persons, had retired to rest. They were alarmed by the dog, and all escaped through one of the windows, except an apprentice girl about 15 years of age. Joshua Lippincot, a young man, after having got safely out, returned to assist the unfortunate girl, and fell a victim to his own humanity. He was a young man of sobriety, mildness and fair promise.

The Editor of the Savannah Georgian says: "Hardly a vestige of the awful conflagration, which defaced this city on the 11th January, 1820, now remains, by which it can be traced."

A young man by the name of William Henry, was lately killed at Carlisle, Pa. by being thrown from his horse.

Suicide.—On Sunday the 4th ult. Mr. Aaron Phillips, of Exeter, Otsego county, about 50 years of age, put an end to his existence, by hanging himself. Mr. Phillips was a respectable farmer, comfortably situated in point of property. He has left a wife and six children.

A child between three and four years old, was drowned in a cistern, in Boston. The curve which surrounded the mouth of the cistern is not more than 18 inches high.

In the Parish of St. Stephen's, Charleston there is a Fountain, into which an Indian is said to have plunged for the purpose of exploring its supposed subterraneous communication with one adjacent, but his body never having risen to the surface, it was conjectured it had become entangled in the roots of the Trees which overshadow the fountain.

On Newyear's day, there was a shooting match in the vicinity of Lexington, Kentucky, in which six Riflemen were engaged, each of whom shot eleven times, and he who placed the six nearest balls to the centre, was the winner.—Distance one hundred and five yards *off hand*. The prize was won by Mr M'Connell, a native of Fayette county, who placed *seven balls within an inch of the cross*. One of the marksmen *who lost*, placed his whole eleven balls within less than two inches of the cross.

Marine coal.—On the waters of the Lehigh and the Schuylkill, about 100 miles from Philadelphia, this species of coal is perhaps in a more condensed form than any other species of fuel known. It is in bulk about 1-10th, and in weight about 1-5th, to produce equal degrees of heat, with oak wood, it is consequently the fittest article (as fuel) for export. It is said that when the Lehigh is improved it can be afforded in Philadelphia at from 20 to 25 cents a bushel; this price would make it equal to oak wood at $2 to 2 1-2 per cord.

The greatest number of regular troops armed and in pay at any one time, during the revolutionary war, was 46,849, which number were in service in 1777.

There is not one carriage kept at present by any private gentleman residing within the city or liberties of Kilkenny, in Ireland, comprising a population of 56,000 souls.

The sea is making such rapid encroachments at the eastern extremity at Brighton, that it has been deemed necessary to call a Special Session of the Commissioners of the town, to devise some mode to prevent the future destructive washings of the water.

A piece of coal land, in the neighbourhood of Bilston, about sixteen acres, was lately sold for the sum of 1,130*l.* per acre!

As a vessel was steering for the Downs, nearly opposite St. Margaret's Bay, while two gentlemen on board were amusing themselves with their guns at a piece of wood floating on the water, they saw a bird coming towards them, which afterwards proved to be a carrier pigeon, apparently from the French coast; when it came near enough to observe so many sailors standing on the beach, it made a sudden tack, as if it intended to take another course: when it came near the ship, one of the gentlemen shot at it, and killed it; the boat was sent, and the poor bird brought on board, when, on examining it, to the utter astonishment of all present, was discovered between the feathers, chiefly on the neck, six French gold rings of the most ingenious workmanship.

Curious Occurrence.—A tradesman of this town having lately placed some oysters on a cupboard, was surprised at finding, in the morning, a mouse caught by the tail by the sudden collapsing of the shell. This incident, though curious, is not new. The oyster has the power of closing the two parts of its shell with considerable force, by means of a strong muscle at the hinge. This circumstance in natural history may be illustrated by a singular incident which happened about forty years since at Ashburton, at the house of Mrs. Aldridge, known by the name of the New Inn. In an underground cellar a dish of Wembury oysters were laid by way of coolnsss: at the time the tide flows, the oysters, it is well known, open their shells to admit the water and take their food.—At this period a large oyster had expanded its shell, and at the instam two mice searching for prey, pounced at once upon the victim, and seized it with their teeth; the oyster, shrinking at the wound collapsed with such force as to crush the marauders to death. The oyster, with two mice dangling from its shell, was for a long time exhibited as a curiosity Carew, in his history of Cornwall, tells of an oyster that closed its shell on *three* mice. An opposite instance is also epigramatically recorded in the Greek Anthology.—*Plymouth Telegraph.*

LIST OF LETTERS,

Remaining in the Post-Office, Albany, 1st April, 1821.

☞ Persons calling for the following Letters, will please to mention that they are advertised.

A.—Daniel Avery, J. A. Ambler, Abraham Angus, Horace Allen, Nathaniel Allen, Benjamin Anderson, Artemas Aldrich, James Alexander, Sarah Ashby.

B.—Gerret V. Z. Bleecker, Rutger Bleecker, John Bryam, Asa Broeks, Rev. Cornelius Bogardus, Wm Brown, John Brigden, Timothy Bussing, Sherman Bosworth, John Boult, Stephen Barnum, John Bennit, John Bouck, James Brown, Isaac Blonk, Roxana Bates, Jane Boey, Esther Brown.

C.—Alexander Cockburn, John Conklin, John Clark, George Charles, William Carpenter, 2, Samuel R. Campbell, Paul Cushman 2, Mattia Capron, Peter Cure, Enoch Coddington, Lewis Clark, Robert Curry, Jeremiah Clark, Walter Clark, James Clark, Timothy Clecey, Charles Cunningham, William Campbell, Anna Cureton.

D.—James Demarest, James D. Forest, Pierce Darrow, Coert Dubois, Thomas Drumgold, Thomas Dean or Daniel owler, William Delesdernier, Francis Denger, Robert Dunbar, Doct'r. Dexter, Wm. W. Dougherty, Louisa M Davis, Jane Disbery, Julia Ann Derby.

E.—John Ewart

F.—Mr. Fracisope, Rev. C. F. Frey, John C. French, James Fordyce, John Folgr, John Fulford, Clark Freeman, Leanor Frier, Ann M. Ford, Lucy Foster.

G.—Joseph Gillespie, Moses Goodrich, Peter W. Grousbeck, Wm. D. Gibbeney, Theodore Goodwin, Mr. Grandisquick, John Green, Hezekiah Gilson, John Gilbert, Sarah Gardner.

H.—Mr. Horseford, Francis Harris, 2, Jacob Haff, Henry Hepburn, Rob't. Hurst, John W. Hyde, James Huested, Isaac Hoes, Samuel Hannes, John Hall, Martin H. Hoffman, Gideon Hawley, Estes Howe, Chauncey Humphrey, Lavina Huff, Eliza Heet, Hannah Harris.

I & J.—Henry Jones, S. Jackson, Edmond Jones, James Isdall, George Jackson, Thomas Jones, Jubeard.

K.—William Kendall, 2, Isaac Kibbee, 2, Robert Keamy, 2, Elizabeth Kenner.

L.—John Leddy, Timothy C. Lay, Joshua Lee, 3, John L. Lawrence, 2, Vinal Luce, Jonathan Lyman, Noah Longee, Hermanus Lansing, Jun. Tousang Ladu, Francis Low, Michael Leyne, George Leete, Jonathan Lamb, Bernh'd. Loser, John Luther, Mrs. Harmanus Lansing, Hannah Lenard.

M.—Peter Miller, Harvelin Morris, William Mancline, Henry Mc Donnell, Alley Mc Gaughran, Joseph D. Monnell, Mr. Mc Crackin, Mr. Millard, John Mc Keasey, Alden March, Michael Money, James F. Mantor, Alexander Mc Douall, Moody, Mary Mc Carty, Mary Markle.

N.—John Nicholson.

O.—Leonard Ormsby, Charles Osborn.

P.—R. P. Paine, Chester Patterson, Ephraim Presby, J. P. Peter Peck, H. W. Pilkington, Theodore Perkins, O. S. Paine.

Q.—Charles Quinn, John Quinlau.

R.—William B. Rochester, 6, John Roberson, Elijah Russell, George Richtmeyer, John Roff, Capt. J. Rodgers, 3, Thomas Reilley, A Rosekrants, Corn's. Reade, James Rodgers, William Richards, William Roderick, Francis Rankins, Aaron Remes, Anna Ransom, Celicia Rivington.

S.—Lawrence Storey, Isaac Slover, George Sharman Thos. R. Smith, William S Sloan, Peter Spawn, 2, George Southmayd, Freeman Swan, Charles Stanford, Jacob W. Seamon, Charles Smyth 3, George D. Stewart, Captain Schuyler, Thomas Sparkman, jun John Smith, Chade Southwick, Josiah Sherman Stanley Skinner, Ormond Stebbins, Thomas Shirley, Henry R. Storrs, Henry Sickmin, Josiah Shipley, S. Skillin, Christian Sackrider, Isaac Stiles, Levi Silliman, Thomas Sickmin, John Shatswell, Betsey Sumrix, Mary Ann Savage, Cynthia Smyth, Betsey Spencer, Lydia Ann Smith.

T.—Charles H. Tappan, Hon. John Tayler, Abraham Ten Eyck, Sylvester Toppins, James Turner, Sophia Tarbell.

V.—Rolif Vanderwarkin, Gerardus Van Schoonhaven, Daniel Van Antwerp or Israel W. Clark, Samuel Ver Vranken, Wm Van Deusen, Jacob L. Van Zandt, A. P. Vosburgh, Catharine Van Rensselaer.

W.—John Woodworth, Elkanah Watson, Eleazer Walker, Perham Webb, Christopher W Wogan, Allen Warden. Anthony Wilson, John Wendiss, Roswell Weston, Nelson Wing, Samuel Wood, David P. Winne, Freeman Wing, Abram White, Jacob Williams, Sally Willis, Ruth Ann Woolsey, Maria Wilcox.

Y.—John W. Yeomans.

S. SOUTHWICK, P. M.

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Lansingburgh, 7th April, 1821. 45 6t

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